

ABSTRACT OF THE DISCLOSURE

Improved dielectric layers are formed by surface treating the dielectric layer with a phosphine plasma prior to forming a barrier layer thereon. Embodiments include forming a trench in a low k dielectric layer and modifying the side surfaces of the trench by subjecting the dielectric to a phosphine plasma produced in PECVD chamber. A conductive feature is formed by depositing a conformal barrier layer on the low k dielectric including the treated side surfaces of the dielectric and depositing a copper containing layer within the trench.